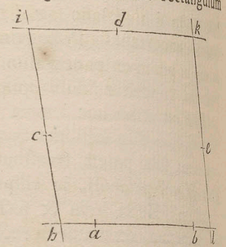
De Motu Corporum

parallela tranſiens per puncta illa *a*, *b*, per quæ conica ſectio in hac figura nova tranſire debet, & parallelogrammum *h i k l* complens. Secentur rectæ *h i*, *i k*, *k l* in *c*, *d*, *e*, ita ut ſit *b c* ad latus quadratum rectanguli *a h b*, *i c* ad *i d*, & *k e* ad *k d* ut eſt ſumma rectarum *h i* & *k l* ad ſummam trium linearum, quarum prima eſt recta *i k*, & alteræ duæ ſunt latera quadrata rectangulorum *a h b* & *a l b*: & erunt *c*, *d*, *e* puncta contactuum. Etenim, ex conicis, ſunt *b c* quadratum ad rectangulum *a h b*, & *i c* quadratum ad *i d* quadratum, & *k e* quadratum ad *k d* quadratum, & *e l* quadratum ad rectangulum *a l b* in eadem ratione; & propterea *b c* ad latus quadratum ipſius *a h b*, *i c* ad *i d*, *k e* ad *k d*, & *e l* ad latus quadratum ipſius *a l b* ſunt in ſubduplicata illa ratione, & compoſite, in data ratione omnium antecedentium *h i* & *k l* ad omnes conſequentes, quæ ſunt latus quadratum rectanguli *a h b*, & recta *i k*, & latus quadratum rectanguli *a l b*. Habentur igitur ex data illa ratione puncta contactuum *c*, *d*, *e*, in figura nova. Per inverſas operationes lemmatis noviſſimi transferantur hæc puncta in figuram primam, & ibi (per prob. XIV.) deſcribetur trajectoria. *Q. E. F.* Cæterum perinde ut puncta *a*, *b* jacent vel inter puncta *h*, *l*, vel extra, debent puncta *c*, *d*, *e* vel inter puncta *h*, *i*, *k*, *l* capi, vel extra. Si punctorum *a*, *b* alterutrum cadit inter puncta *h*, *l*, & alterum extra, problema impoſſibile eſt.

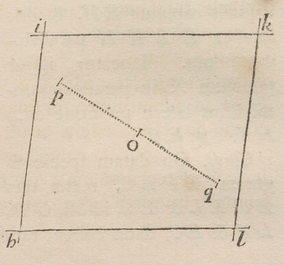


PROPOSITIO XXVI. PROBLEMA XVIII.

Trajectoriam deſcribere, quæ tranſibit per punctum datum, & rectas quatuor poſitione datas continget.

Ab interſectione communi duarum quarumlibet tangentium ad interſectionem communem reliquarum duarum agatur recta infinita, & eadem pro radio ordinato primo adhibita, tranſmutetur figura (per lem. XXII.) in figuram novam, & tangentes binæ, quæ ad radium ordinatum primum concurrebant, jam evadent parallelæ. Sunto

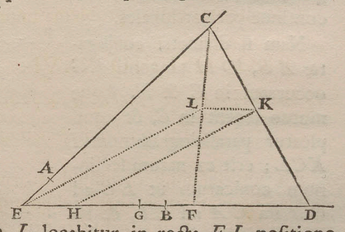
to illæ *h i* & *k l*, *i k* & *h l* continentes parallelogrammum *h i k l*. Sitque *p* punctum in hac nova figura puncto in figura prima dato reſpondens. Per figuræ centrum *O* agatur *p q*, & exiſtente *O q* æquali *O p*, erit *q* punctum alterum per quod ſectio conica in hac figura nova tranſire debet. Per lemmatis XXII. operationem inverſam transferatur hoc punctum in figuram primam, & ibi habebuntur puncta duo per quæ trajectoria deſcribenda eſt. Per eadem vero deſcribi poteſt trajectoria illa per problema XVII. *Q. E. F.*



LEMMA XXIII.

Si rectæ duæ poſitione datæ AC, BD *ad data puncta* A, B, *terminentur, datamque habeant rationem ad invicem, & recta* CD, *qua puncta indeterminata* C, D *junguntur, ſecetur in ratione data in* K: *dico quod punctum* K *locabitur in recta poſitione data.*

Concurrant enim rectæ *AC*, *BD* in *E*, & in *BE* capiatur *BG* ad *AE* ut eſt *BD* ad *AC*, ſitque *FD* ſemper æqualis datæ *EG*; & erit ex conſtructione *EC* ad *GD*, hoc eſt, ad *EF* ut *AC* ad *BD*, ideoque in ratione data, & propterea dabitur ſpecie triangulum *EFC*. Secetur *CF* in *L* ut ſit *CL* ad *CF* in ratione *CK* ad *CD*; & ob datam illam rationem, dabitur etiam ſpecie triangulum *EFL*; proindeque punctum *L* locabitur in recta *EL* poſitione data. Junge *LK*, & ſimilia erunt triangula *CLK*, *CFD*; & ob datam *FD* & datam rationem *LK* ad *FD*, dabitur *LK*. Huic



ISAAC NEWTON *Philosophiæ Naturalis Principia Mathematica* LONDON, 1726 THE WARNOCK LIBRARY Octavo